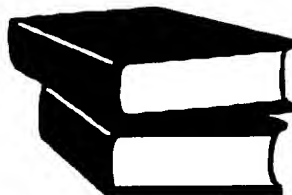




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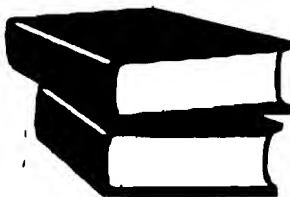
Date: 3/14/2000  
2001

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## Foreign Patents &amp; Scientific Literature Branch

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Search Requested: US/English language equivalent ☐ English Abstracts ☐Database used (check one): West 2.0 ☐ EAST ☐ Orbit ☐ Dialog ☒ \$ 17.70

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Country	<u>US</u>	Patent No.	<u>5715270</u>	Pages	_____	Tech Center	_____	Found	<input type="checkbox"/>
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☐ 1. 2/19/1 (Item 1 from file: 351)

011713212 \*\*Image available\*\*

WPI Acc No: 1998-130122/199812

XRPX Acc No: N98-102766

Diode laser array e.g. for laser guidance system - has  
multiple laser head assemblies that combine single wavelength beams from  
multiple diode lasers

Patent Assignee: MCDONNELL DOUGLAS CORP (MCDD )

Inventor: HAAKE J M; RICE R R; ZEDIKER M S

Number of Countries: 076 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5715270	A	19980203	US 96722619	A	19960927	199812 B
WO 9813910	A1	19980402	WO 97US16445	A	19970916	199820
AU 9746461	A	19980417	AU 9746461	A	19970916	199834
EP 1008212	A1	20000614	EP 97945210	A	19970916	200033
			WO 97US16445	A	19970916	
JP 2001501777	W	20010206	WO 97US16445	A	19970916	200111
			JP 98515715	A	19970916	

Priority Applications (No Type Date): US 96722619 A 19960927

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

US 5715270 A 15 H01S-003/091

WO 9813910 A1 E 27 H01S-003/091

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU  
CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV  
MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG UZ  
VN

Designated States (Regional): AT BE CH DE DK EA ES FI FR GB GH GR IE IT  
KE LS LU MC MW NL OA PT SD SE SZ UG ZW

AU 9746461 A H01S-003/091 Based on patent WO 9813910

EP 1008212 A1 E H01S-003/091 Based on patent WO 9813910

Designated States (Regional): DE FR IT

JP 2001501777 W 33 H01S-005/40 Based on patent WO 9813910

Abstract (Basic): US 5715270 A

The array has a number of laser head assemblies (400A, 400B, 400C, ..., 400N), each containing M diode laser modules (410) generating M laser beams, each having different single wavelength. These are incident on M-2 dichroic filters, each transmits a corresponding one of the M laser beams and reflects all of the others.

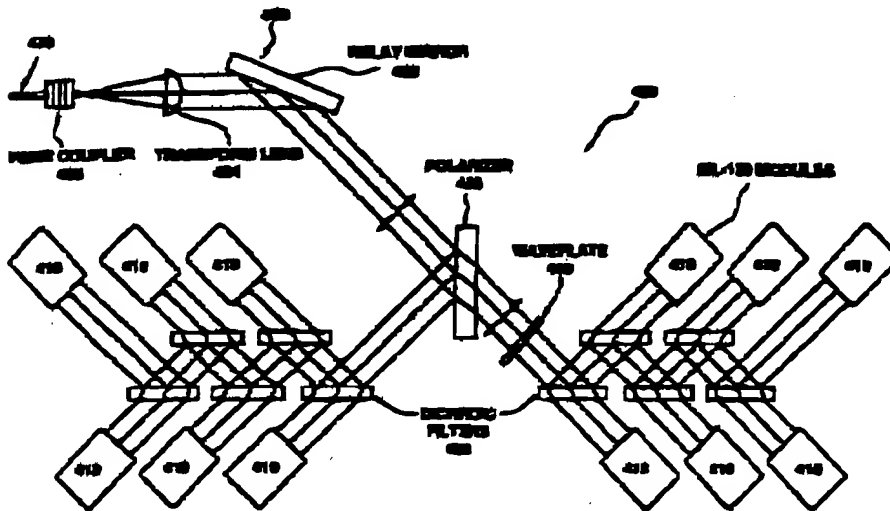
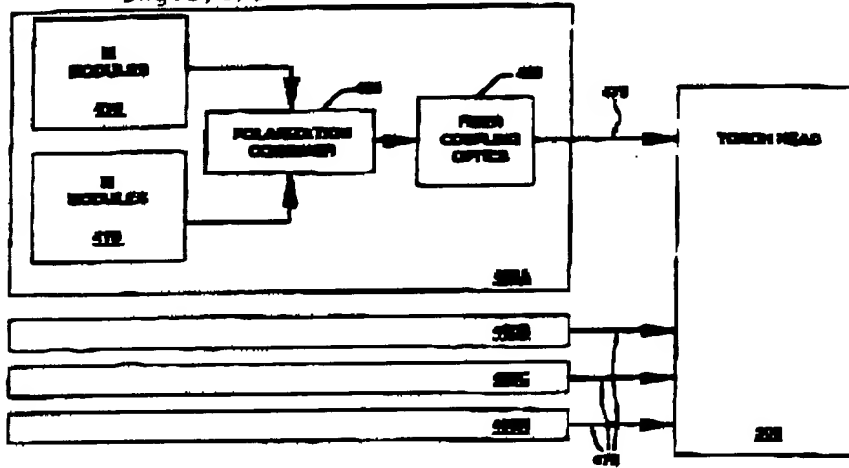
A polariser (460) combines the beams which are transmitted to an optical fiber (470) via coupling optics (460), which include a relay mirror (462), a transform lens (464) and a fiber coupler (466). The N optical fibers from the N laser head assemblies are recollimated and focused onto a single spot by an optical assembly. This optical assembly may be N collimating lenses each receiving one of output beams with a single transform lens focusing the recollimated output beams.

USE - Can be used in laser tracking, laser guidance, laser imaging, offensive and defensive weapon systems, material processing, e.g.,

welding and in medicine, e.g., surgical and diagnostic aids.

ADVANTAGE - Produces high power output with high efficiency, all collimated laser beams can be produced using laser diode arrays and a high intensity is generated at workpiece.

Dwg. 5, 6/9



Title Terms: DIODE; LASER; ARRAY; LASER; GUIDE; SYSTEM; MULTIPLE; LASER;  
HEAD; ASSEMBLE; COMBINATION; SINGLE; WAVELENGTH; BEAM; MULTIPLE; DIODE;  
LASER

Index Terms/Additional Words: HIGH; FLUENCY

Derwent Class: P81; S05; U12; V07; V08; W06; X24

International Patent Class (Main): H01S-003/091; H01S-005/40

International Patent Class (Additional): G02B-006/28; H01S-003/00;

H01S-003/06; H01S-003/08; H01S-003/09; H01S-005/026

File Segment: EPI; EngPI

Manual Codes (EPI/S-X): S05-B01; S05-D02X; S05-X; U12-A01B1J; U12-A01C;

V07-G10C; V07-K04; V08-A04A; V08-A07; V08-A08; W06-A06; X24-D03

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2. 2/19/2 (Item 2 from file: 345)

14138034

Basic Patent (No,Kind,Date): US 5715270 A 19980203

PATENT FAMILY:

AUSTRALIA (AU)

Patent (No,Kind,Date): AU 9746461 A1 19980417

HIGH EFFICIENCY, HIGH POWER DIRECT DIODE LASER SYSTEMS AND METHODS  
THEREFOR (English)

Patent Assignee: MC DONNELL DOUGLAS CORP

Author (Inventor): ZEDIKER MARK S; RICE ROBERT R; HAAKE JOHN M

Priority (No,Kind,Date): US 722619 A 19960927; WO 97US16445 W  
19970916

Applic (No,Kind,Date): AU 9746461 A 19970916

IPC: \* H01S-003/091; H01S-003/09; H01S-003/08; H01S-003/00

Derwent WPI Acc No: \* G 98-130122

Language of Document: English

EUROPEAN PATENT OFFICE (EP)

Patent (No,Kind,Date): EP 1008212 A1 20000614

HIGH EFFICIENCY, HIGH POWER DIRECT DIODE LASER SYSTEMS AND METHODS  
THEREFOR (English; French; German)

Patent Assignee: MC DONNELL DOUGLAS CORP (US)

Author (Inventor): ZEDIKER MARK S (US); RICE ROBERT R (US); HAAKE  
JOHN M (US)

Priority (No,Kind,Date): WO 97US16445 W 19970916; US 722619 A  
19960927

Applic (No,Kind,Date): EP 97945210 A 19970916

Designated States: (National) DE; FR; IT

IPC: \* H01S-003/091; H01S-003/09; H01S-003/08; H01S-003/00

Derwent WPI Acc No: \* G 98-130122

Language of Document: English  
Patent (No,Kind,Date): EP 1008212 A4 20010228  
HIGH EFFICIENCY, HIGH POWER DIRECT DIODE LASER SYSTEMS AND METHODS  
THEREFOR (English; French; German)  
Patent Assignee: MC DONNELL DOUGLAS CORP (US)  
Author (Inventor): ZEDIKER MARK S (US); RICE ROBERT R (US); HAAKE  
JOHN M (US)  
Priority (No,Kind,Date): WO 97US16445 W 19970916; US 722619 A  
19960927  
Applic (No,Kind,Date): EP 97945210 A 19970916  
Designated States: (National) DE; FR; IT  
IPC: \* H01S-003/091; H01S-003/09; H01S-003/08; H01S-003/00  
Derwent WPI Acc No: \* G 98-130122  
Language of Document: English  
EUROPEAN PATENT OFFICE (EP)  
Legal Status (No,Type,Date,Code,Text):  
EP 1008212 P 19960927 EP AA PRIORITY (PATENT  
APPLICATION) (PRIORITAET (PATENTANMELDUNG))  
  
US 722619 A 19960927  
EP 1008212 P 19970916 EP AA PCT-APPLICATION  
(PCT-ANMELDUNG)  
WO 97US16445 W 19970916  
EP 1008212 P 19970916 EP AE EP-APPLICATION  
(EUROPAEISCHE ANMELDUNG)  
EP 97945210 A 19970916  
EP 1008212 P 20000614 EP AK DESIGNATED CONTRACTING  
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(IN EINER ANMELDUNG BENANNT VERTRAGSSTAATEN)  
  
DE FR IT  
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WITH SEARCH REPORT (VEROEFFENTLICHUNG DER  
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EP 1008212 P 20000614 EP 17P REQUEST FOR EXAMINATION  
FILED (PRUEFUNGSANTRAG GESTELLT)  
19990423  
EP 1008212 P 20010228 EP AK DESIGNATED CONTRACTING  
STATES MENTIONED IN A SUPPLEMENTARY SEARCH  
REPORT: (IN EINEM ERGAENZENDEN  
RECHERCHENBERICHT BENANNT VERTRAGSSTAATEN)  
  
DE FR IT  
EP 1008212 P 20010228 EP A4 SUPPLEMENTARY SEARCH REPORT  
(ERGAENZENDER RECHERCHENBERICHT)  
20010117

UNITED STATES OF AMERICA (US)

Patent (No,Kind,Date): US 5715270 A 19980203  
HIGH EFFICIENCY, HIGH POWER DIRECT DIODE LASER SYSTEMS AND METHODS  
THEREFOR (English)  
Patent Assignee: MC DONNELL DOUGLAS CORP (US)  
Author (Inventor): ZEDIKER MARK S (US); RICE ROBERT R (US); HAAKE  
JOHN M (US)  
Priority (No,Kind,Date): US 722619 A 19960927  
Applic (No,Kind,Date): US 722619 A 19960927  
National Class: \* 372075000; 372109000; 372043000; 385024000;  
385047000  
IPC: \* H01S-003/091; H01S-003/00; G02B-006/28  
Derwent WPI Acc No: \* G 98-130122; G 98-130122  
Language of Document: English

\* UNITED STATES OF AMERICA (US)

Legal Status (No,Type,Date,Code,Text):  
US 5715270 P 19960927 US AE APPLICATION DATA (PATENT)  
(APPL. DATA (PATENT))

US 5715270 P 19960927 US AS02 ASSIGNMENT OF ASSIGNOR'S  
INTEREST  
MCDONNELL DOUGLAS CORPORATION P.O. BOX 516  
ST. LOUIS, MISSOURI 63166-051 ; ZEDIKER, MARK  
S. : 19960920; RICE, ROBERT R. : 19960920;  
HAAKE, JOHN M. : 19960920  
US 5715270 P 19980203 US A PATENT  
US 5715270 P 20000801 US RF REISSUE APPLICATION FILED  
(REISSUE APPL. FILED)  
20000203

WORLD INTELLECTUAL PROPERTY ORGANIZATION, PCT (WO)  
Patent (No,Kind,Date): WO 9813910 A1 19980402  
HIGH EFFICIENCY, HIGH POWER DIRECT DIODE LASER SYSTEMS AND METHODS  
THEREFOR (English)  
Patent Assignee: MC DONNELL DOUGLAS CORP (US)  
Author (Inventor): ZEDIKER MARK S; RICE ROBERT R; HAAKE JOHN M  
Priority (No,Kind,Date): US 722619 A 19960927  
Applic (No,Kind,Date): WO 97US16445 A 19970916  
Designated States: (National) AL; AM; AT; AU; AZ; BA; BB; BG; BR; BY;  
CA; CH; CN; CU; CZ; DE; DK; EE; ES; FI; GB; GE; HU; IL; IS; JP; KE;  
KG; KP; KR; KZ; LC; LK; LR; LS; LT; LU; LV; MD; MG; MK; MN; MW; MX;  
NO; NZ; PL; PT; RO; RU; SD; SE; SG; SI; SK; TJ; TM; TR; TT; UA; UG;  
UZ; VN; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM (Regional) GH; KE; LS;  
MW; SD; SZ; UG; ZW; AT; BE; CH; DE; DK; ES; FI; FR; GB; GR; IE; IT;  
LU; MC; NL; PT; SE; BF; BJ; CF  
Filing Details: WO 100000 With international search report  
IPC: \* H01S-003/091; H01S-003/09; H01S-003/08; H01S-003/00  
Derwent WPI Acc No: \* G 98-130122  
Language of Document: English

WORLD INTELLECTUAL PROPERTY ORGANIZATION, PCT (WO)  
Legal Status (No,Type,Date,Code,Text):  
WO 9813910 P 19960927 WO AA PRIORITY (PATENT)  
US 722619 A 19960927  
WO 9813910 P 19970916 WO AE APPLICATION DATA (APPL.  
DATA)  
WO 97US16445 A 19970916  
WO 9813910 P 19980402 WO AK DESIGNATED STATES CITED IN A  
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(DESIGNATED STATES CITED IN A PUBLISHED APPL.  
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KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO  
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WO 9813910 P 19980402 WO AL DESIGNATED COUNTRIES FOR  
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WO 9813910 P 19980402 WO A1 PUBLICATION OF THE  
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INTERNATIONAL SEARCH REPORT (PUB. OF THE  
INTERNATIONAL APPL. WITH THE INTERNATIONAL  
SEARCH REPORT)  
WO 9813910 P 19980430 WO DFPE REQUEST FOR PRELIMINARY  
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MONTH FROM PRIORITY DATE  
WO 9813910 P 19980812 WO 121 EP: PCT APP. ART. 158 (1)  
(EP: PCT ANM. ART. 158 (1))

WO 9813910	P	19990326	WO ENP	ENTRY INTO THE NATIONAL
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WO 9813910	P	19990729	DE 8642/REG	IMPACT ABOLISHED FOR DE
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WO 9813910	P	20000327	WO NENP	NON-ENTRY INTO THE NATIONAL
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